

# Mineral Industry Surveys

**For information, contact:**

Donald W. Olson, Abrasives Commodity Specialist  
U.S. Geological Survey  
983 National Center  
Reston, VA 20192  
Telephone: (703) 648-7721, Fax: (703) 648-7722  
E-mail: [dolson@usgs.gov](mailto:dolson@usgs.gov)

Christine K. Pisut (Data)  
Telephone: (703) 648-7967  
Fax: (703) 648-7975

**Internet:** <http://minerals.usgs.gov/minerals>

## MANUFACTURED ABRASIVES IN THE FOURTH QUARTER 2002

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units.

### Fused Aluminum Oxide

During the fourth quarter of 2002, one fused aluminum oxide production plant was on strike the entire quarter. This left only one company with one plant operating in Canada producing fused aluminum oxide. The total production during the fourth quarter of 2002 was 10,000 tons of regular-grade crude fused aluminum oxide with an estimated value of \$2.6 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide for the year through November 2002 were 75,300 metric tons valued at \$18.5 million, or an average of \$246 per ton. About 62% of the imports came from China, 21% from Canada, and 17% from Venezuela. Imports of crude fused aluminum oxide from China have been rising, but some of the imports may not be abrasive quality material.

U.S. imports of refined and ground fused aluminum oxide in the first eleven months of 2002 reached 68,400 tons valued at \$39.8 million, or an average of \$582 per ton. The top five

sources of the refined and ground imports were China (61%), Austria (8%), Germany (8%), Brazil (6%), and Canada (6%). Low-cost imports of fused aluminum oxide grain from China also have increased in recent years. The imports, however, reportedly include refractory-grade material as well as abrasive grain. U.S. exports of fused aluminum oxide through November 2002 were 9,610 tons. The exports were valued at \$28.9 million, or \$3,010 per ton. Germany received 37% of the exports that were shipped; Mexico received 20% and Canada received 20%.

The Department of Defense stores fused aluminum oxide in the National Defense Stockpile (NDS). All of the NDS aluminum oxide, however, has been authorized by law for disposal. During the fourth quarter of 2002, the Department of Defense reported sales of 20 tons of fused aluminum oxide abrasive grain valued at \$9,900. At the end of the quarter, NDS reported 16,156 tons of fused aluminum oxide abrasive grain with an estimated value of \$4.4 million remained in the stockpile. The NDS has sold all of the crude fused aluminum oxide in the stockpile (Janet Rollins, Defense National Stockpile Center, oral commun., 2002). No further stockpiling of crude fused aluminum oxide by the Department of Defense is anticipated. If the current disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide abrasive grain will be sold by 2003.

### Notice

The U.S. Geological Survey (USGS) will no longer print paper copies of the *Mineral Industry Surveys* for mailing list distribution after release of the Fourth Quarter 2002 report. The report will continue to be available on the USGS Web site at URL: <http://minerals.usgs.gov/minerals>.

If you would like to receive e-mail notification for future issues of the *Mineral Industry Surveys*, instructions are provided at <http://minerals.usgs.gov/minerals/pubs/listservices.html>.

## **Silicon Carbide**

Abrasive-grade silicon carbide is produced by one company in the United States. The total production during the fourth quarter of 2002 was 10,000 tons of abrasive-grade silicon carbide with an estimated value of \$5 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for the year through November 2002 were 121,000 tons valued at \$38.1 million; imports from China alone were 116,000 tons valued at \$33.5 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$922 per ton; the average price of Chinese crude was \$289 per ton. U.S. imports of refined and ground silicon carbide for the same period were 28,700 tons valued at \$34.6 million, or an average of \$1,210 per ton. During the period, China accounted for 96% of the crude material and 34% of the refined and ground material.

U.S. exports of crude silicon carbide through November 2002 were reported to be 1,120 tons with a value of \$3.5 million. Exports of refined and ground silicon carbide were 11,500 tons valued at \$7.9 million. About 75% of the crude material was shipped to Norway, Mexico and Germany, and most of the refined material went to Canada, Australia, Mexico, and Germany, in decreasing order.

The NDS has sold all of the silicon carbide in the stockpile, and no further stockpiling is anticipated.

## **Metallic Abrasives**

Metallic abrasives information was collected from 12 companies operating 14 U.S. plants. During the fourth quarter of 2002, six companies produced 53,400 tons of steel shot and grit, a decrease relative to the same period in 2001. At least one of the companies produced shot and grit from reclaimed material. Total fourth quarter production was valued at \$24.3 million, or an average of \$456 per ton. Total annual estimated output in 2002 is 216,000 tons valued at \$96.9 million; 2001 output was 222,000 tons valued at \$97.4 million.

Shipments of steel shot and grit in the fourth quarter were 52,800 tons valued at \$24.7 million, or an average of \$468 per ton. Shipments during the fourth quarter of 2001 were 51,100 tons valued at \$23.6 million for an average of \$461 per ton.

Fourth quarter production of other types of metallic shot and grit (primarily cut wire shot) was 248 tons valued at \$831,000. Six companies produced shot.

Imports of all types of metallic shot and grit through November 2002 were 11,600 tons valued at \$7.7 million for an average of \$657 per ton. Canada was the largest supplier, accounting for 52% of the tonnage imported.

Exports of all types of metallic abrasives through November 2002 were 16,900 tons valued at \$11.7 million, or an average of \$696 per ton. Shipments to Canada accounted for 53% of the exports; an additional 39% was shipped to Mexico.

TABLE 1  
MANUFACTURED ABRASIVES 1/

(Metric tons, unless otherwise specified)

Source and product	2001		2002							
	Fourth quarter		First quarter		Second quarter		Third quarter		Fourth quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada, production: 2/										
Silicon carbide 3/	10,000	\$5,200	10,000	\$5,700	10,000	\$5,300	10,000	\$5,300	10,000	\$5,000
Crude aluminum oxide, regular-grade	5,000	1,500	5,000	1,400	5,000	1,400	5,000	1,400	10,000	2,600
United States, production:										
Steel shot and grit	53,900	23,400	52,900	23,200	53,700	24,000	57,400	25,900	53,400	24,300
Other shot and grit e/ 4/	269	881	262	856	281	901	267	886	248	831
Total	54,200	24,300	53,200	24,100	54,000	24,900	57,700	26,800	53,700	25,200
United States, shipments:										
Steel shot and grit	51,100	23,600	53,500	24,300	56,400	26,500	57,900	27,000	52,800	24,700
Other shot and grit e/ 4/	271	904	265	874	284	999	257	941	256	940
Total	51,400	24,500	53,800	25,200	56,700	27,500	58,200	27,900	53,100	25,600

e/ Estimated.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

3/ Includes materials for metallurgical uses and other applications.

4/ Includes cut wire shot and reclaimed shot and grit from primary producers.